

Psychological vulnerability, resilience, and subjective well-being: The mediating role of hope



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ABSTRACT

The present study examined the mediating role of hope on the association between psychological vulnerability, resilience, and subjective well-being. Participants include 332 undergraduates (195 females and 137 males) from two universities in Turkey. Data were collected using the Psychological Vulnerability Scale, the Brief Resilience Scale, the Dispositional Hope Scale, the Satisfaction with Life Scale, and the Positive and Negative Affect Schedule. Structural equation modeling results indicated that hope fully mediated the impact of resilience on subjective well-being and that hope partially mediated the impact of psychological vulnerability on subjective well-being. Moreover, bootstrapping procedure revealed significant links from psychological vulnerability and resilience to subjective well-being through hope. Alternative models indicated mixed support for the variable ordering in the structural model. These findings contribute to the complex nature of the relationship between psychological factors and subjective well-being. The possible explanations and limitations are discussed.

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1. Introduction

The scientific study on subjective well-being has been of interest in the last three decades with the remarkable rise of the positive psychology movement which focuses on the human strengths and virtues and also building the best qualities in life (Seligman, 2002). As a human strength, subjective well-being can be defined as being satisfied with life, experiencing long term affect of pleasure and feeling less negative emotions. In other words, subjective well-being is a multidimensional concept which refers a global appraisal of individuals' own life in terms of cognitive dimensions including general life satisfaction and affective dimensions which refer to the presence pleasant affect, and absence unpleasant affect. Happy individuals experience high levels of satisfaction with their lives, greater positive emotions, and less negative emotions (Diener, 2000; Diener, Lucas, Oishi, 2002).

A bulk of research examined demographic variables that may predict subjective well-being such as age, sex, socioeconomic status, educational level, marital status, income (Vera-Villarreal, et al., 2012). Some other researches have also focused the association between subjective well-being and internal factors and human strengths like gratitude, self-esteem, self-efficacy, optimism, forgiveness, hope, meaning in life, social self-efficacy, loneliness and shyness (Hombrados-Mendieta, Garcia-Martin, & Gomez-Jacinto, 2013; Li, Shi, & Dang, 2014; Snyder &

Lopez, 2007). In a longitudinal study, it was yielded that positive psychological constructs, positive emotions, stress and anxiety may be significant predictors of well-being (Avey, Wernsing, & Mhatre, 2011).

Previous studies have indicated that resilience that can be accepted as a human strength may have a substantial impact on subjective well-being (Doyle et al., 2015; Liu, Wang, & Lü, 2013). Resilience has been defined broadly and variously over the years. While Thornton and Sanchez (2010, p.455) defined resilience as a "dynamic process that enables the individual to respond or adapt under adverse situations", Connor and Davidson (2003, p.76) defined it as "as the personal qualities that enable one to thrive in the face of adversity". People who are resilient are more persistent in the face of adversity, can struggle better with threatening circumstances, deal effectively with stress and hardship, have more capacity to respond life stressors and cope better with everyday difficulties (Mandleco & Perry, 2000; Smith, 2006).

Resilience involves positive patterns of adaptation in defiance of adversity and this adaptation process develops over time (Wright, Masten, & Narayan, 2013). Connor and Davidson (2003) have discussed resilience as an important target of treatment in maladaptive situations such as anxiety and depression. Ong, Bergeman, Bisconti, and Wallace (2006) suggested over time high-resilient individuals may recover effectively from daily stress. Therefore, resilience can be seen as an important predictor to enhance subjective well-being. Similarly, studies indicated that resilience was positively related to mindfulness, positive affect, and life satisfaction, happiness, extraversion and negatively related to negative affect and neuroticism (Bajaj & Pande, 2015; Lü, Wang, & Zhang, 2014).

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Contrary to resilience that has also been termed as “invulnerability” psychological vulnerability can be seen as a negative predictor of subjective well-being. The vulnerability can be defined as at risk for developing psychopathology and susceptibility to undesirable outcomes (Wright, et al., 2013). Sinclair and Wallston (1999, p.102) suggested that psychological vulnerability refers to cognitive structures which make individuals more fragile to stress and described it as a “pattern of cognitive beliefs reflecting a dependence on achievement or external sources of affirmation for one’s sense of self-worth”.

Psychological vulnerability is a natural result of being human and each individual was endowed with a degree of vulnerability which may cause psychological problems in cases of experiencing stressful conditions (Zubin & Spring, 1977). Previous literature on psychological vulnerability indicated that there was a positive relationship between psychological vulnerability and negative affect and depressive symptoms. On the other hand, the psychological vulnerability was negatively correlated with positive affect, life satisfaction, dispositional optimism, and self-efficacy (Sinclair & Wallston, 1999). Additionally, some research suggests that there is a link between the psychological vulnerability and adaptive constructs which are closely associated with subjective well-being such as life satisfaction, social safeness and flourishing (Satıcı, Uysal, Yilmaz, & Deniz, 2016; Uysal, 2015).

1.1. Hope as a mediator

Hope as a human psychological strength is the cognitive process that helps people to have positive expectation to reach desired goals and to perceive that these goals can be met. Hope has been defined as “a cognitive set that is based on a reciprocally derived sense of successful agency (goal-directed determination) and pathways (planning to meet goals)” (Snyder et al., 1991, p.571). Therefore, hope consists of three components: (a) goals which refer anything that an individual has a wish to get or reach, (b) pathway thinking which refers producing different or possible ways and planning routes to reach these goals and (c) agency thinking that refers tendency to develop and maintain motivation to meet desired goals, and having energy to use pathways to achieve goals (Snyder, 2002; Taysi, Curun, & Ocan, 2015).

Snyder (2002) suggested that hope is an important factor for people with lower well-being and is positively related to psychological well-being, and physical health. Findings from recent studies have also revealed that hope is a significant predictor of life satisfaction, positive affect, negative affect and flourishing (Demirli, Türkmen, & Arık, 2015). High-hope individuals evaluate stressful situations as challenging rather than threatening and judge situations generally in positive ways (Rubin, 2001). These individuals are also confident, energized, and experience lower levels of depression (Snyder, 1999). Additionally, hope was found positively linked with increased self-esteem, positive thoughts, optimism, psychological well-being, physical health and resilience and negatively linked with depression and externalizing behaviors (Karairmak, 2007; Snyder, 2002; Snyder & McCullough, 2000). In their study which has a longitudinal conceptual framework, Meeks et al. (2016) proved that hope may be related to quality of life, social support, and anxiety. Valle, Huebner, and Suldo (2006) indicated that individuals who state higher levels of hope were more likely to report higher levels of life satisfaction a year later. Hope was also found as a factor that promotes resiliency and a positive inner source for both future and present-oriented life (Graneek et al., 2013). Additional studies indicated that hope may act as a mediator between adaptive variables like life satisfaction and maladaptive variables like psychological distress (Rustoen, Cooper, & Miaskowski, 2010). Therefore, hope might play a significant role in the influence of resilience and psychological vulnerability on subjective well-being.

In this paper, it was aimed to investigate the possible mediating role of hope in path analyzes and it was hypothesized that hope would mediate the relationships between resilience, psychological vulnerability, and subjective well-being on cross-sectional data. In other words, it

was proposed that while resilience may facilitate the development of hopeful thinking, psychological vulnerability may inhibit hope, and hopeful thinking may lead to high or low levels of subjective well-being. Although most previous studies indicated that hope may mediate the relationships between different variables, to our knowledge, no study has compared the relationships of resilience, psychological vulnerability and subjective well-being in a Turkish sample.

2. Method

2.1. Participants and procedure

A cross-sectional survey was conducted between October 2015 and December 2015 with 332 [195_(58.7%) female, 137_(41.3%) male] voluntary university students in Istanbul and Eskisehir, two large-sized cities in the northwest and middle part of Turkey. The mean age of the participants was 20.96 years (SD = 2.01). Participants were attending classes in one of the four grades of higher education (26.2, 22.9, 21.7 and 29.2% were in the first, second, third and fourth year, respectively). Table 1 shows detailed demographic and socioeconomic variables. We excluded 14 participants from the analyzes due to missing data. The questionnaires were administered to classroom groups (40 to 60 students) in paper-and-pencil based format in the classroom. The participants were not given any promise of reward. The questionnaires were counterbalanced to control for sequential effect. 8 booklets were designed in a way which each questionnaire can appear at the beginning and/or at the end of the booklet. Since the questionnaires were anonymous, individual participants could not be identified. We explained that participants could withdraw from the study whenever they want. Each participant took about 15 to 20 min to complete the measures.

2.2. Measures

2.2.1. Subjective well-being

Subjective well-being was measured by Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) and Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985). The PANAS is designed to assess affective dimension of the subjective well-being. The PANAS consists of two 10-items scales; positive affect (PA) and negative affect (NA), rated on a 5-point Likert scale (1 = very slightly or not at all to, 5 = extremely). Possible scores range from 10 to 50 with higher scores reflecting positive or negative affect. The Turkish version of PANAS was adopted by Gencoz (2000). Gencoz reported that Cronbach alpha coefficient 0.83 and 0.86 for PA and NA, respectively. The SWLS is designed to assess cognitive dimension of the subjective well-being. The SWLS consist of five items (e.g. If I could live my life over, I would change almost nothing). Responses

Table 1
Participant characteristics.

Variable	n	Valid %
<i>Gender</i>		
Female	195	58.7
Male	137	41.3
<i>Academic majors</i>		
Psychological Sc.	54	16.3
Educational Sc.	69	20.8
Sciences	35	10.5
Arts/Humanities Sc.	67	20.2
Economics Sc.	74	22.3
Engineering Sc.	33	9.9
<i>Perceived socio-economic status</i>		
Very poor	19	5.7
Poor	77	23.2
Moderate	139	41.9
Good	72	21.7
Excellent	25	7.5

were made on a 7-point Likert scale (1 = Strongly disagree and 6 = Strongly agree). Higher scores indicate greater satisfaction with life. The Turkish version of SWLS was adopted by Durak, Senol-Durak, and Gencoz (2010). Durak and colleagues reported that Turkish version of the SWLS has acceptable reliability (Cronbach alpha: 0.81) and validity (CFA: $\chi^2/df = 2.026$, IFI = 0.99, TLI = 0.99, CFI = 0.99, SRMR = 0.020, and RMSEA = 0.043). In the present study, the SWLS and PANAS have acceptable Cronbach alphas; 0.81, 0.79, 0.80, for SWLS, PA, and NA, respectively.

2.2.2. Hope

Hope was measured by Dispositional Hope Scale (DHS; Snyder, et al., 1991) which is designed to assess an individual's general or characteristic level of hope. The DHS is a 12-item including four filler items questionnaire that generates scores based on two subscales: agency (e.g. my past experiences have prepared me well for my future) and pathway (e.g. I can think of many ways to get the things in life that are important to me). Responses were made on an 8-point Likert scale (1 = Definitely false and 6 = Definitely true). Higher scores indicate greater hope. The Turkish version of DHS was adopted by Tarhan and Bacanlı (2015). Tarhan and Bacanlı reported that Turkish version of the DHS has acceptable reliability (Cronbach alpha: 0.84) and validity (CFA: GFI = 0.96, AGFI = 0.92, NNFI = 0.94, RFI = 0.90 CFI = 0.96, and RMSEA = 0.077). In the present study, the DHS have acceptable Cronbach alphas; 0.75, 0.81, for agency and pathway, respectively.

2.2.3. Resilience

Resilience was measured by Brief Resilience Scale (BRS; Smith, et al., 2008) which is designed to assess the ability to bounce back or recover from stress. The BRS is a 6-item (I tend to bounce back quickly after hard times). Responses were made on a 5-point Likert scale (1 = Strongly disagree and 5 = Strongly agree). Higher scores indicate greater resiliency. The Turkish version of BRS was adopted by Doğan (2015). Doğan reported that Turkish version of the BRS has acceptable reliability (Cronbach alpha: 0.83) and validity (CFA: $\chi^2/df = 1.83$, NFI = 0.99, NNFI = 0.99, CFI = 0.99, IFI = 0.99, RFI = 0.97, GFI = 0.99, AGFI = 0.96, RMSEA = 0.05, and SRMR = 0.03). In the present study, the BRS have acceptable Cronbach alpha (0.87).

2.2.4. Psychological vulnerability

The psychological vulnerability was measured by Psychological Vulnerability Scale (PVS; Sinclair & Wallston, 1999). The PVS is 6-item (e.g. I tend to set my goals too high and become frustrated trying to reach them). Responses were made on a 5-point Likert scale (1 = Unsuitable to me and 5 = Suitable to me). Higher scores indicate greater psychological vulnerability. The Turkish version of PVS was adopted by Akin and Eker (2011). Akin and Eker reported that Turkish version of the PVS has acceptable reliability (Cronbach alpha: 0.75) and validity (CFA: NFI = 0.97, GFI = 0.99, AGFI = 0.98, RFI = 0.95, SRMR = 0.025, and RMSEA = 0.00). In the present study, the PVS have acceptable Cronbach alpha (0.70).

2.3. Data analysis

First, an initial correlational analysis was used to examine the relationships between subjective well-being, resiliency, psychological vulnerability, and hope measures. Descriptive statistics (mean, standard deviations, skewness, and kurtosis) were also tested via IBM SPSS Statistics version 20.

The mediation role of hope was tested using the two-step structural equation analysis procedure. Firstly, the measurement model was calculated to assess whether each of the latent variables was represented by its indicators. If the measurement model turns out satisfactory, then the structural model can be tested using the maximum likelihood estimation in the AMOS Graphics. To evaluate the overall fit of the model to the data, several indices recommended

by Hu and Bentler (1999) was calculated in the current study: χ^2/df ratio, SRMR, RMSEA, CFI, GFI, and TLI. We also calculated AIC and ECVI in order to find the best model. For AIC and ECVI, smaller values represent a better model fit.

We estimated bootstrapping procedure with 10,000 bias-corrected bootstraps 95% confidence intervals (CIs). Bootstrapping procedure includes the creation of an empirical representation of the population by continuously resampling from the empirical sample for mimic the original sampling process (MacKinnon, Lockwood, & Williams, 2004). They recommended the use of the percentile bootstrap, which provides a CI and has been shown to provide both reasonable controls of type 1 error and good statistical power. Applying this procedure, an indirect role was significant if zero was not included in the computed CIs.

3. Results

3.1. Correlation and descriptive statistics of variables

Descriptive statistics and bivariate correlations are displayed in Table 2. Inspection of the skewness and kurtosis indices for all variables in the study proved normal (skewness ranged from -0.81 to 1.05 , and kurtosis from -0.58 to 0.75). All the variables revealed significant associations with each other. As expected, positive affect and life satisfaction were positively associated with hope and resilience and negatively associated with psychological vulnerability. Conversely, negative affect was positively associated with psychological vulnerability and negatively associated with hope and resilience. These results provide a solid foundation for structural equation model analysis.

3.2. Measurement model

There are four latent variables (subjective well-being, hope, resilience, and psychological vulnerability) and 17 observed variables in the measurement model. The fit indices for the measurement model were as follows: $\chi^2_{(113, N = 332)} = 230.84$, $p < 0.001$; CFI = 0.93; GFI = 0.92; TLI = 0.92; SRMR = 0.056; RMSEA = 0.056 C.I. [0.046, 0.066]. Values of the fit indices showed that the measurement model had an adequate fit. All indicators loaded significantly their corresponding latent constructs (ranged -0.52 to 0.88 , $p < 0.001$), indicating that latent variables were adequately operationalized by the observed variables.

3.3. Structural model

First, the role of hope as a full mediator between resilience/psychological vulnerability and subjective well-being (Model I). This model revealed an acceptable fit to data: $\chi^2_{(115, N = 332)} = 244.42$, $p < 0.001$; CFI = 0.93; GFI = 0.92; TLI = 0.91; SRMR = 0.063; RMSEA = 0.058 C.I. [0.048, 0.068]; AIC = 320.42; ECVI = 0.97. Then, we added links (from resilience to subjective well-being and from psychological vulnerability to subjective well-being). When these relationships were added (Model II), the fit was good: $\chi^2_{(113, N = 332)} = 238.40$, $p < 0.001$; CFI = 0.93; GFI = 0.92; TLI = 0.92; SRMR = 0.057; RMSEA = 0.056 C.I. [(0.046, 0.066)]; AIC = 314.82; ECVI = 0.954, however, only the link from psychological vulnerability to subjective well-being was statistically significant, while the other added link from resilience to subjective well-being was not significant ($\beta = 0.16$, $p > 0.05$). When this non-significant link was removed (Model III), the resulting model showed an satisfactory fit to data: $\chi^2_{(114, N = 332)} = 234.25$, $p < 0.001$; CFI = 0.93; GFI = 0.92; TLI = 0.92; SRMR = 0.057; RMSEA = 0.056 C.I. [0.046, 0.067]; AIC = 312.25; ECVI = 0.943. According to Model III, consistent with it functioning as a mediator resilience may have an indirect role on subjective well-being through hope and psychological vulnerability both direct and indirect roles on subjective well-being. The statistics associated with the path coefficients can be seen in Fig. 1.

Table 2
Correlations and descriptive statistics of the study variables.

Variable	Bivariate correlations						Descriptive statistics			
	1	2	3	4	5	6	M	SD	Skewness	Kurtosis
1. Positive affect	–						30.56	6.74	–0.03	–0.09
2. Negative affect	–0.25**	–					20.74	6.71	1.05	0.75
3. Life satisfaction	0.32**	–0.29**	–				21.62	6.27	–0.36	–0.58
4. Agency ^h	0.41**	–0.28**	0.23**	–			24.86	4.46	–0.81	0.30
5. Pathway ^h	0.47**	–0.30**	0.34**	0.68**	–		23.32	4.27	–0.67	0.50
6. Resilience	0.31**	–0.34**	0.19**	0.40**	0.40**	–	18.90	4.85	–0.15	–0.29
7. Vulnerability	–0.16**	0.37**	–0.24**	–0.25**	–0.30**	–0.34**	16.27	4.34	0.28	–0.21

Note. ^h subscales of the hope.

** $p < 0.01$.

3.4. Bootstrapping

The mediating role of hope between resilience, psychological vulnerability and subjective well-being was tested for significance using the bootstrapping procedure. Table 3 shows the direct and indirect roles and their associated 95% confidence intervals. The indirect role involving resilience as the predictor was statistically significant (bootstrap estimate = 0.25, 95%CI = 0.13, 0.40), indicating that hope significantly mediated the relationship between resilience and subjective well-being. Moreover, the indirect role involving psychological vulnerability as the predictor was statistically significant (bootstrap estimate = –0.19, 95%CI = –0.32, –0.09), indicating that hope significantly mediated the relationship between psychological vulnerability and subjective well-being.

3.5. Alternative models

We examined various alternative models due to the cross-sectional nature of the data. These various models consisted of varied associations among the study variables. If these various models supported lower fits to the data, they would further promote the present theoretical model. The first alternative model (Model IV) that include hope as an exogenous variable, resilience, and psychological vulnerability as mediator variables, and subjective well-being as separate outcome variables

was tested. Results revealed that Model IV was not satisfactory fit to the data $\chi^2_{(115, N = 332)} = 280.35, p < 0.001$; CFI = 0.90; GFI = 0.90; TLI = 0.88; SRMR = 0.068; RMSEA = 0.066 C.I. [0.056, 0.076]; AIC = 356.35; ECVI = 1.08.

In the second alternative model (Model V), hope was exogenous variable, subjective well-being was a mediator variable, and resilience and psychological vulnerability were outcome variables. Model V was also low fit to the data especially CFI = 0.89, GFI = 0.89, and TLI = 0.88; $\chi^2_{(116, N = 322)} = 296.10, p < 0.001$; SRMR = 0.71; RMSEA = 0.068 C.I. [0.059, 0.078]; AIC = 370.10; ECVI = 1.12. In respect to all models' AIC and ECVI values, Model III had smaller AIC and ECVI values than the other models (see Table 4). Also, Model III had the better fit to the data. In conclusion, the preferred final model suggested that hope fully mediated the role of resilience on subjective well-being and that partially mediated the role of psychological vulnerability on subjective well-being with cross-sectional data.

4. Discussion

Hope that helps individuals cope with various life challenges and may serve to drive well-being of people can be defined as a “unidimensional construct involving an overall perception that goals can be met” (Snyder, et al., 1991, p.570) and involves two interrelated cognitive components: agency and pathways (Snyder, 2002). Research has established that hope directly associated with positive outcomes,

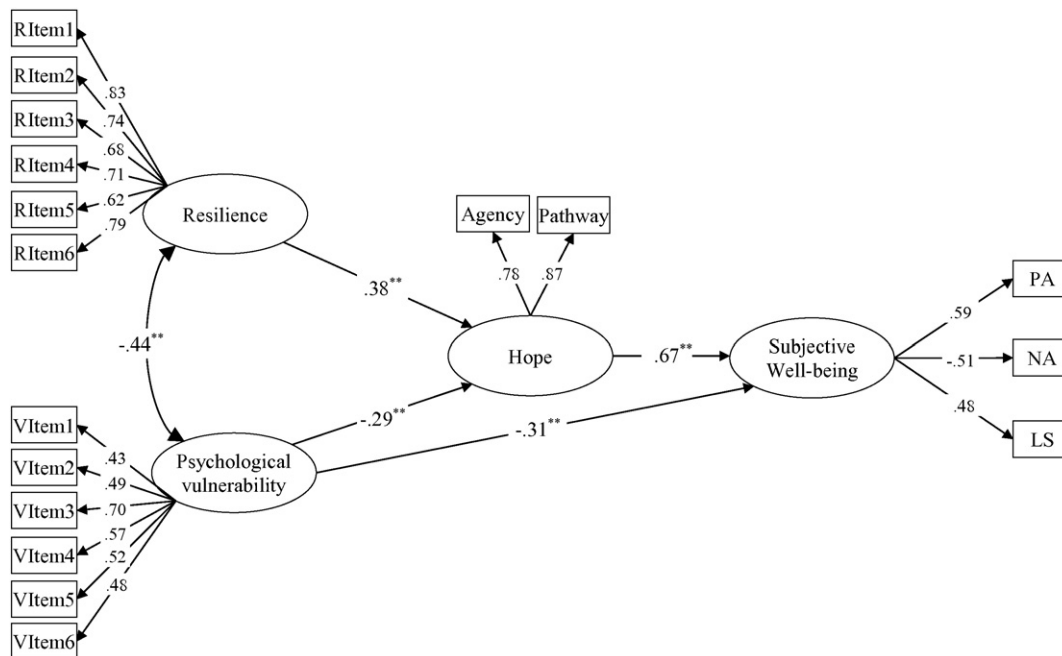


Fig. 1. Standardized factor loading for the final structural model. Note. $N = 332$; ** $p < 0.01$; PA positive affect; NA negative affect; LS life satisfaction; RItem items of the Brief Resilience Scale; VItem items of the Psychological Vulnerability Scale

Table 3
Parameters and 95%CI for the paths of the final model.

Model pathways	Estimated	95%CI	
		Lower	Upper
Direct link			
Resilience→Hope	0.380	0.226	0.507
Psychological vulnerability→Hope	−0.286	−0.443	−0.122
Psychological vulnerability→Subjective well-being	−0.308	−0.543	−0.078
Hope→Subjective well-being	0.666	0.447	0.854
Indirect link			
Resilience→Hope→Subjective well-being	0.253	0.125	0.403
Psychological vulnerability→Hope→Subjective well-being	−0.190	−0.322	−0.088

adjustment and subjective well-being (Snyder, 2002). On the other hand, lower levels of hope are connected with aversive variables (Rustoen, et al., 2010). In this regard, the main goal of the present study was to identify whether hope mediates the relationships between resilience/psychological vulnerability and subjective well-being.

The full mediating role of hope was identified in the relationship between resilience and subjective well-being based on cross-sectional data which means that this result of the current study in concordance with feeling high level of resilience may provide experiencing high hope which helps to report more positive evaluations about cognitive and affective dimensions of life. Although, to date, the bulk of research have examined the link between resilience and subjective well-being (i.e., Liu et al., 2013; Lü, Wang, Liu, & Zhang, 2015) no other study has investigated the possible mediator role of hopeful thinking in this relationship. Our findings may consistent with the findings of Magaletta and Oliver (1999) who reported that hope as a cognitive set “might reflect a positive orientation toward experience and that might thus contribute to well-being (p.549)”. The research stated that hope may be an essential component of resilience and helps individual to alleviate the effects of stress on health (Werner, 1993). According to Wu (2011) resilience is positively related with hope and both of these constructs have a direct positive influence on life satisfaction. Similarly, Gillespie, Chaboyer, and Wallis (2007) claimed that hope may be identified as a defining attribute of resilience. McCullough (2002) propounded that hopeful individuals experience more positive emotions like zest and evaluate stress as an opportunity to reach their goals. Additionally, several studies found hope may be predictors of subjective well-being and indicators of subjective well-being such as positive affect, negative affect, forgiveness, quality of life and flourishing (Demirli, et al., 2015; Taysi et al., 2015; Wu, 2011). Thus, it can be said that this result of the study is parallel with earlier studies.

Results which are also based on cross-sectional data indicated that hope acted as a partial mediator of the relationship between psychological vulnerability and subjective well-being. In other words, the findings are consistent with individuals who have higher levels of vulnerability being more likely to develop lower hopeful thinking, which in turn contributes to lower subjective well-being. However, there may be models that were not examined that would also be equally consistent with the data. This result seems parallel with Rustoen and colleagues' (2001) study that reported that hope mediated the relationship between psychological distress and life satisfaction in a community sample of cancer

patients. Halama (2010) also remarked that hope acts as a partial mediator between neuroticism which is significantly associated with being vulnerable to psychological problems and life satisfaction which is the cognitive part of subjective well-being. Some additional studies revealed that hope was negatively linked with maladaptive variables such as depression, anxiety and loneliness (Arnau, Rosen, Finch, Rhudy, & Fortunato, 2007; Lackaye & Margalit, 2008) and adaptive variables such as optimism, coping styles, positive affect and self-efficacy (Lackaye & Margalit, 2008; Kararmak, 2007). Hence, these findings also seem to be consistent with previous literature.

As it was expected, correlational results showed that both resilience and hope had positive relationships with subjective well-being. In addition, the psychological vulnerability was found negatively associated with resilience, hope, and subjective well-being. These findings are in line with numerous studies that have examined the link between these variables. Sinclair and Wallston (1999) demonstrated that psychological vulnerability was positively related to negative affect and depressive symptoms and negatively related to positive affect and life satisfaction. Taysi and colleagues (2015) found that hope was negatively related to anger and depression. Hope was also found as a significant predictor of subjective well-being (Şahin et al., 2012). Similarly, Tomas et al. (2012) stated that resilience is also an important indicator of well-being.

4.1. Limitations

Several limitations of the present study should be addressed. The first limitation of the current study is that the data was collected only via self-report measures that may reduce the internal validity. Using multiple methods to collect data may help to reduce the effect of subjectivity. Besides, using different methods (e.g., observation and peer evaluation) may be essential to measure the level of resilience and vulnerability level. The second limitation is that the participations of the study were university students living in two cities in Turkey. So, it is limited to generalize of findings of the current study. The third limitation is that this study has a cross-sectional design which makes cause and effect interpretations difficult. The relationship between hope and resilience might be reversed with hope leading to resilience. Similarly, some sort of reciprocal relationship might be found between hope and psychological vulnerability. In order to overcome this limitation of the study and to clarify the causal order, future research should use longitudinal designs that permit stronger conclusions regarding the causal direction of the variables. In addition, while it was seen that the best well-fitted model the model which examined in this study, it should be considered the fit indexes of alternative models were not low. Thus, as suggested by Maxwell and Cole (2007) longitudinal data may be used to examine mediation role which can provide a better understanding of these variables. Clarification of timing and possible causal order may also be clarified with experimental studies. The last limitation is that the mediating role of hope has been tested in the present study, but other possible mediators need to be identified.

4.2. Implications

Despite the limitations mentioned above, the present study presents some important contributions to the existing literature on positive psychology through examining constructs like subjective well-being, hope, and resilience. Counseling services and other professionals should consider the role of hope and develop psycho-educational programs including hope to increase well-being. Additionally, resilience is an improbable and learnable trait (Luthar, Cicchetti, & Becker, 2000). Therefore, counseling programs which aim to increase resiliency can be an effective method to reduce psychological vulnerability and to enhance subjective well-being.

Table 4
Fit indices among competing models.

Model	χ^2	CFI	GFI	TLI	SRMR	RMSEA	AIC	ECVI
I	244.42	0.93	0.92	0.91	0.063	0.058	320.42	0.97
II	238.40	0.93	0.92	0.92	0.057	0.056	314.82	0.95
III	234.25	0.93	0.92	0.92	0.057	0.056	312.25	0.94
IV	280.35	0.90	0.90	0.88	0.068	0.066	356.35	1.08
V	296.10	0.89	0.89	0.88	0.710	0.068	370.10	1.12

4.3. Conclusions

Analysis of the study proved the mediational role of hope between resilience/psychological vulnerability and subjective well-being in a sample of Turkish university students. Given that positive psychology set out to determine the factors that may contribute subjective well-being, the current study has provided more understanding for both practitioners and researchers.

References

- Akın, A., & Eker, H. (2011). Turkish version of the psychological vulnerability scale: A study of validity and reliability. *32th International Conference of the Stress and Anxiety Research Society, Spain*.
- Arnau, R. C., Rosen, D. H., Finch, J. F., Rhudy, J. L., & Fortunato, V. J. (2007). Longitudinal effects of hope on depression and anxiety: A latent variable analysis. *Journal of Personality, 75*(1), 43–64.
- Avey, J., Wernsing, T., & Mhatre, K. (2011). A longitudinal analysis of positive psychological constructs and emotions on stress, anxiety and well-being. *Journal of Leadership and Organizational Studies, 18*(2), 216–228.
- Bajaj, B., & Pande, N. (2015). Mediating role of resilience in the impact of mindfulness on life satisfaction and affect as indices of subjective well-being. *Personality and Individual Differences, http://dx.doi.org/10.1016/j.paid.2015.09.005*.
- Connor, K. M., & Davidson, J. R. (2003). Development of a new resilience scale: The Connor-Davidson resilience scale (CD-RISC). *Depression and Anxiety, 18*(2), 76–82.
- Demirli, A., Türkmen, M., & Arık, R. S. (2015). Investigation of dispositional and state hope levels' relations with student subjective well-being. *Social Indicators Research, 120*(2), 601–613.
- Diener, E. (2000). Subjective well-being: The science of happiness and a proposal for a national index. *American Psychologist, 55*(1), 34–43.
- Diener, E. D., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment, 49*(1), 71–75.
- Diener, E., Lucas, R. E., & Oishi, S. (2002). Subjective well-being. In C. R. Snyder ve, & S. J. Lopez (Eds.), *Handbook of Positive Psychology* (pp. 63–73). New York: Oxford University Press.
- Doğan, T. (2015). Adaptation of the brief resilience scale into Turkish: A validity and reliability study. *The Journal of Happiness & Well-Being, 3*(1), 93–102.
- Doyle, N., MacLachlan, M., Fraser, A., Stolz, R., Lismont, K., Cox, H., & McVeigh, J. (2015). Resilience and well-being amongst seafarers: cross-sectional study of crew across 51 ships. *International Archives of Occupational and Environmental Health, 88*(1–11).
- Durak, M., Senol-Durak, E., & Gencoz, T. (2010). Psychometric properties of the satisfaction with life scale among Turkish university students, correctional officers, and elderly adults. *Social Indicators Research, 99*(3), 413–429.
- Gencoz, T. (2000). Positive and negative affect schedule: A study of validity and reliability. *Türk Psikoloji Dergisi, 15*, 19–28.
- Gillespie, B. M., Chaboyer, W., & Wallis, M. (2007). Development of a theoretically derived model of resilience through concept analysis. *Contemporary Nurse, 25*(1–2), 124–135.
- Graneek, L., Barrera, M., Shaheed, J., Nicholas, D., Beaune, L., ... Antle, B. (2013). Trajectory of parental hope when a child has difficult-to-treat cancer: A prospective qualitative study. *Psycho-Oncology, 22*(11), 2436–2444.
- Halama, P. (2010). Hope as a mediator between personality traits and life satisfaction. *Studia Psychologica, 52*(4), 309–314.
- Hombrados-Mendieta, I., Garcia-Martin, M. A., & Gomez-Jacinto, L. (2013). The relationship between social support, loneliness, and subjective well-being in a Spanish sample from a multidimensional perspective. *Social Indicators Research, 114*(3), 1013–1034.
- Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*(1), 1–55.
- Kararimak, Ö (2007). *Investigation of personal qualities contributing to psychological resilience among earthquake survivors: A model testing study*. Unpublished PhD Thesis Ankara: Middle East Technical University.
- Lackaye, T., & Margalit, M. (2008). Self-Efficacy, loneliness, effort, and hope: Developmental differences in the experiences of students with learning disabilities and their non-learning disabled peers at two age groups. *Learning Disabilities: A Contemporary Journal, 6*(2), 1–20.
- Li, C., Shi, X., & Dang, J. (2014). Online communication and subjective well-being in Chinese college students: The mediating role of shyness and social self-efficacy. *Computers in Human Behavior, 34*, 89–95.
- Liu, Y., Wang, Z., & Lü, W. (2013). Resilience and affect balance as mediators between trait emotional intelligence and life satisfaction. *Personality and Individual Differences, 54*(7), 850–855.
- Lü, W., Wang, Z., Liu, Y., & Zhang, H. (2014). Resilience as a mediator between extraversion, neuroticism and happiness, PA and NA. *Personality and Individual Differences, 63*, 128–133.
- Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development, 71*(3), 543.
- Lü, W., Wang, Z., Liu, Y., & Zhang, H. (2015). Resilience as a mediator between extraversion, neuroticism and happiness, PA and NA. *Personality and Individual Differences, 63*, 128–133.
- MacKinnon, D. P., Lockwood, C. M., & Williams, J. (2004). Confidence limits for the indirect effect: Distribution of the product and resampling methods. *Multivariate Behavioral Research, 39*(1), 99–128.
- Magaletta, P. R., & Oliver, J. M. (1999). The hope construct, will, and ways: Their relations with self-efficacy, optimism, and general well-being. *Journal of Clinical Psychology, 55*(5), 539–551.
- Mandleco, B. L., & Perry, J. C. (2000). An organizational framework for conceptualizing resilience in children. *Journal of Child and Adolescent Psychiatric Nursing, 13*, 99–111.
- Maxwell, S. E., & Cole, D. A. (2007). Bias in cross-sectional analyses of longitudinal mediation. *Psychological Methods, 12*(1), 23–44.
- McCullough, M. E. (2002). Savoring life, past and present: Explaining what hope and gratitude share in common. *Psychological Inquiry, 13*, 302–304.
- Meeks, S., Van Hattma, K., Mast, B. T., Arnold, S., Streim, J. E., & Sephton, S. (2016). Psychological and social resources relate to biomarkers of allostasis in newly admitted nursing home residents. *Aging & Mental Health, 20*(1), 88–99.
- Ong, A. D., Bergeman, C. S., Bisconti, T. L., & Wallace, K. A. (2006). Psychological resilience, positive emotions, and successful adaptation to stress in later life. *Journal of Personality and Social Psychology, 91*(4), 730–749.
- Rubin, H.H. (2001). Hope and ways of coping after breast cancer. Unpublished MA Thesis, Rand Afrikaans University, Johannesburg.
- Rustoen, T., Cooper, B. A., & Miaskowski, C. (2010). The importance of hope as a mediator of psychological distress and life satisfaction in a community sample of cancer patients. *Cancer Nursing, 33*(4), 258–267.
- Şahin, M., Aydin, B., Sarı, S. V., Kaya, S., & Pala, H. (2012). Öznel iyi oluşu açıklamada umut ve yaşamda anılmanın rolü [The role of hope and the meaning in life in explaining subjective well-being]. *Kastamonu Education Journal, 20*, 827–836.
- Satıcı, S. A., Uysal, R., Yılmaz, M. F., & Deniz, M. E. (2016). Social safeness and psychological vulnerability in Turkish youth: The mediating role of life satisfaction. *Current Psychology, 35*(1), 22–28.
- Seligman, M. E. (2002). Positive psychology, positive prevention, and positive therapy. *Handbook of Positive Psychology, 2*, 3–12.
- Sinclair, V. G., & Wallston, K. A. (1999). The development and validation of the psychological vulnerability scale. *Cognitive Therapy and Research, 23*(2), 119–129.
- Smith, T. W. (2006). Personality as risk and resilience in physical health. *Current Directions in Psychological Science, 15*(5), 227–231.
- Smith, B. W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., & Bernard, J. (2008). The Brief Resilience Scale: Assessing the ability to bounce back. *International Journal of Behavioral Medicine, 15*(3), 194–200.
- Snyder, C. R. (1999). Hope, goal-blocking thoughts, and test-related anxieties. *Psychological Reports, 84*(1), 206–208.
- Snyder, C. R. (2002). Hope theory: Rainbows in the mind. *Psychological Inquiry, 13*(4), 249–275.
- Snyder, C. R., Harris, C., Anderson, J. R., Holleran, S. A., Irving, L. M., Sigmon, S. T., ... Harney, P. (1991). The will and the ways: development and validation of an individual-differences measure of hope. *Journal of Personality and Social Psychology, 60*(4), 570.
- Snyder, C. R., & Lopez, S. J. (2007). *Positive Psychology: The Scientific and Practical Explorations of Human Strengths*. US: Sage Publications, Inc.
- Snyder, C. R., & McCullough, M. E. (2000). A positive psychology field of dreams: "If you build it, they will come...". *Journal of Social and Clinical Psychology, 19*(1), 151–160.
- Tarhan, S., & Bacanlı, H. (2015). Adaptation of dispositional hope scale into Turkish: Validity and reliability study. *The Journal of Happiness & Well-Being, 3*(1), 1–14.
- Taysi, E., Curun, F., & Orcan, F. (2015). Hope, anger, and depression as mediators for forgiveness and social behavior in Turkish children. *The Journal of Psychology, 149*(4), 378–393.
- Thornton, B., & Sanchez, J. E. (2010). Promoting resiliency among Native American students to prevent dropouts. *Education, 131*(2), 455–464.
- Tomas, J. M., Sancho, P., Melendez, J. C., & Mayordomo, T. (2012). Resilience and coping as predictors of general well-being in the elderly: A structural equation modeling approach. *Aging & Mental Health, 16*(3), 317–326.
- Uysal, R. (2015). Social competence and psychological vulnerability: The mediating role of flourishing. *Psychological Reports, 117*(2), 554–565.
- Valle, M. F., Huebner, E. S., & Suldo, S. M. (2006). An analysis of hope as a psychological strength. *Journal of School Psychology, 44*(5), 393–406.
- Vera-Villarreal, P., Urzua, A., Celis-Atenas, P. P. K., & Silva, J. (2012). Evaluation of subjective well-being: Analysis of the satisfaction with life scale in Chilean population. *Universitas Psychologica, 11*(3), 719–727.
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of Personality and Social Psychology, 54*(6), 1063.
- Werner, E. E. (1993). Risk and resilience in individuals with learning disabilities: Lessons learned from the Kauai longitudinal study. *Learning Disabilities Research and Practice, 8*(1), 28–34.
- Wright, M. O., Masten, A. S., & Narayan, A. J. (2013). Resilience processes in development: Four waves of research on positive adaptation in the context of adversity. In S. Goldstein, & R. B. Brooks (Eds.), *Handbook of Resilience in Children* (pp. 15–37) (2nd ed.). New York, NY: Kluwer.
- Wu, H. C. (2011). The protective effects of resilience and hope on quality of life of the families coping with the criminal traumatization of one of its members. *Journal of Clinical Nursing, 20*(13–14), 1906–1915.
- Zubin, J., & Spring, B. (1977). Vulnerability: A new view of schizophrenia. *Journal of Abnormal Psychology, 86*(2), 103.